



BUILDING FOR THE FUTURE THROUGH MODERN BIOLOGY AND BIOTECHNOLOGY

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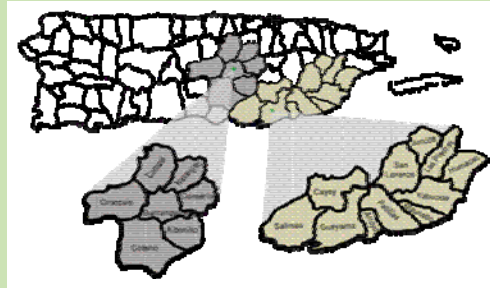
Outline



- Project Goal
- Project Components
 - BS Biotechnology
 - Curriculum revision
 - Faculty workshops
 - *Teaching Undergraduate Genomic and Proteomic Sciences* Symposium
 - Laboratory Equipment
 - Acquisition, installation, calibration



Given the obvious potential from biotechnology for Puerto Rico, the **Guayama** and **Barranquitas** campuses from the **Inter American University of Puerto Rico** have agreed to collaborate to provide to our students an opportunity to enter into fields of studies like biotechnology, genetics, and molecular biology.



Project Goal

The goal of this project is to promote and strengthen life sciences academic programs (biotechnology and biology) at IAUPR-BC and IAUPR-GC from the Inter American University of Puerto Rico System (IAUPR).



BS Biotechnology



- Create a **new BS in Biotechnology** at IAUPR-GU over the two year period.
- Admit **15** Hispanic students to the BS in Biotechnology at IAUPR-BC and **20** students at IAUPR-GC over the two year period.
- Curriculum

– General Education	44 Credits
– Biotechnology, Biology, Chemistry	82
– Electives	<u>6</u>
Total	132 Credits



Curriculum Revision



- **Update and articulate laboratory activities** and include problem solving based learning in **six courses** common to the Biology and Biotechnology programs of the IAUPR System (BIOL 1103: Laboratory Skills I, BIOL 2013: Laboratory Skills II, BIOL 4605: Laboratory Skills III, BIOL 4953: Research Methods, BIOL 4623: Recombinant DNA Techniques, and BIOL 4728: Genetic Expression and Protein Purification).
- Web based educational materials



Faculty Recombinant DNA Techniques Workshops

SUBJECT	Hours
• Safety in Biotechnology and Molecular Biology Laboratory	3
• Genomic DNA isolation and quantification	3
• Enzyme restriction digestion analysis	3
• DNA agarose gel electrophoresis	3
• Bacterial transformation and cloning	6
• Plasmid DNA purification	5
• Polymerase Chain Reaction (PCR)	12
• Protein purification by liquid chromatography	12
• Protein quantification and electrophoresis by SDS PAGE	6
• Westernblot	6
• RT-PCR Workshop 1: Theory, detection chemistry, primer design	6
• RT-PCR Workshop 2: Experimental, data analysis, troubleshooting	6
• Articulation of course content and laboratory activities	8
BIOL 1103, BIOL 2013, and BIOL 4605	
BIOL 4953	
BIOL 4623 and BIOL 4728	

Total 84 hours



Teaching Undergraduate Genomic and Proteomic Sciences Symposium



- One day symposium
- Main speaker
- Concurrent sessions
- On the 2nd year of the project



Students in the Job-Training



- Train two Hispanic students per academic semester as **biotechnology laboratory assistants** at IAUPR-BC.



Laboratory Equipment IAUPR Guayama



Autoclave
PCR Thermal Cycler
Cell incubator with shaker
Microcentrifuge
Micropipettes (3 sets)
Ultralow-Temperature Freezer
Dry electroblotter
Photodocumentation System
Dry Bath incubator
Dual Uv/white light Transilluminator



Laboratory Equipment IAUPR Barranquitas

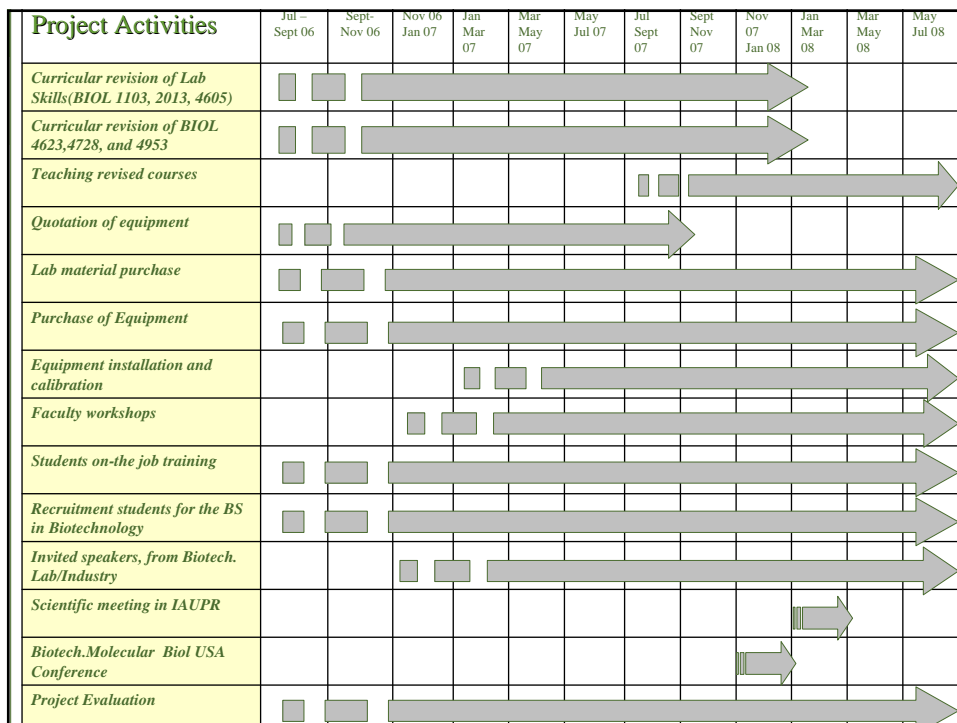


Microcentrifuge

BioRad Real Time PCR

Accessories BioRad Real Time PCR

Analytical balance





Management: Project Personnel

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